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TELENOMUS SPECIES (HYMENOPTERA: SCELIONIDAE) ASSOCIATED WITH THE EGGS OF ZYGAENIDAE (LEPIDOPTERA)

NORMAN F. JOHNSON AND FERDINANDO BIN

(NFJ) Department of Entomology, The Ohio State University, 1735 Neil Avenue, Columbus, Ohio 43210; (FB) Istituto di Entomologia Agraria, Università di Perugia, Borgo XX Giugno, 06100 Perugia, Italy.

Abstract.—Two species of *Telenomus* are known to parasitize the eggs of Zygaenidae. ***Telenomus argus*** n. sp. has been reared from the eggs of the vineyard pest *Theresimima ampelophaga* Bayle-Barelle in Israel. *Telenomus zygaenae* Kieffer was reported to attack the eggs of *Zygaena lonicerae* (Scheven); it is compared with *T. argus* and its host relationships discussed.

Key Words: Parasitoid, biological control

The new species of *Telenomus* (Hymenoptera: Scelionidae) described below has been reared from the eggs of *Theresimima* (*Ino*) *ampelophaga* Bayle-Barelle (Lepidoptera: Zygaenidae) in Israel. This moth is one of the few zygaenids of any economic importance: it feeds on *Vitis* spp. in countries around the Mediterranean Basin and in other warm areas of the western Palearctic (Balachowsky 1972). We therefore present this description in order to provide biological control workers with a name for the parasitoid. In addition, we discuss *T. zygaenae* Kieffer, the only other *Telenomus* recorded from this family of moths. The morphological terminology used follows that discussed in Johnson (1984).

Telenomus argus, NEW SPECIES
Fig. 1

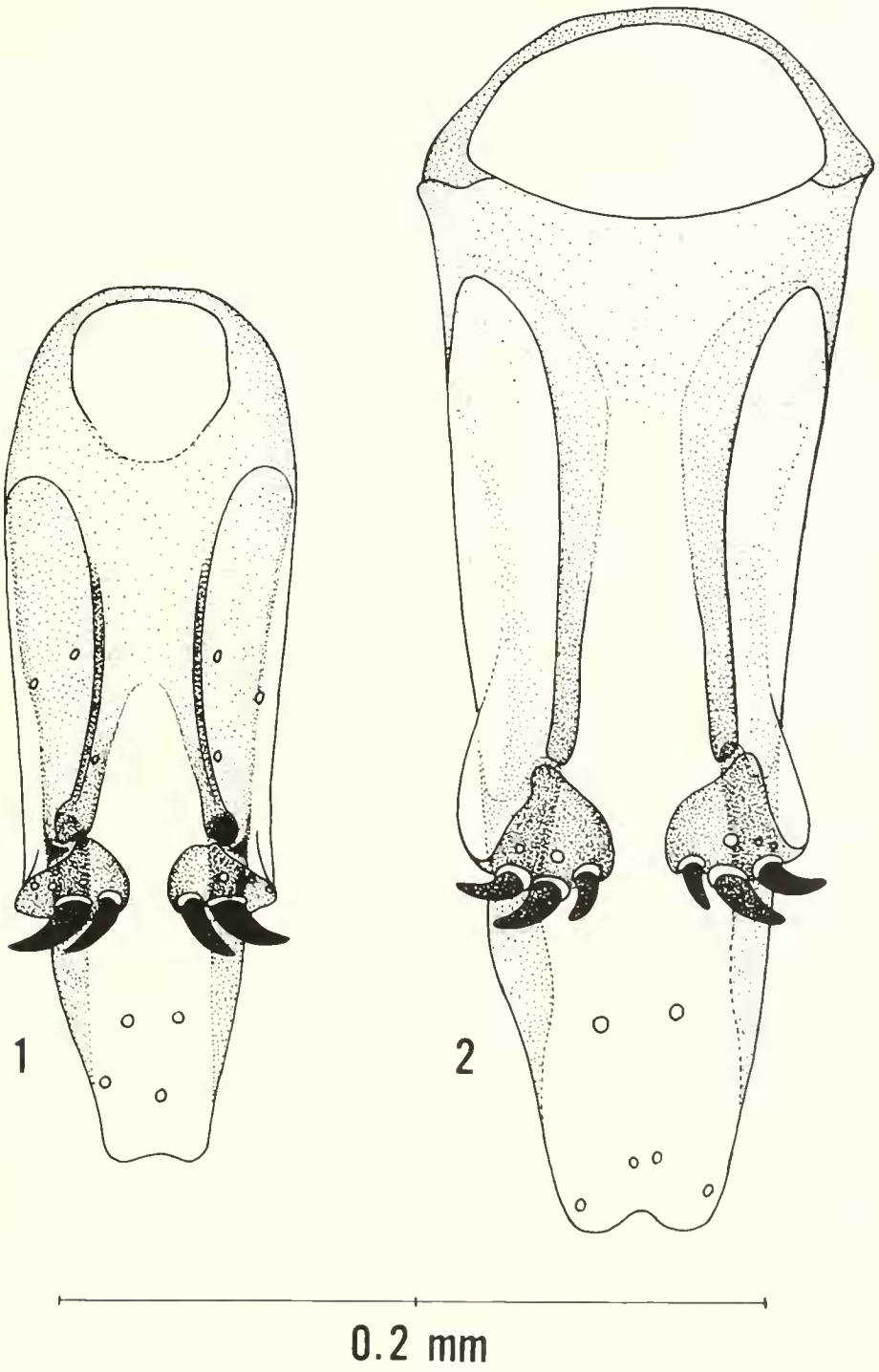
Length 0.47–0.54 mm (n = 20 males, 20 females). Small, but typical species of the *T. californicus* complex (see Johnson 1984 for characters of that taxon).

Head: hyperoccipital carina absent, vertex broadly rounded onto occiput; preocellar pit (Bin and Dessart 1983) absent; frons smooth medially, orbital bands present ventrally, effaced dorsally; frons width > eye height; lower frons with curved wrinkles flanking clypeal range and antennal insertions; labrum articulated with clypeus, not fused, mandibles tridentate, teeth subequal in size.

Mesosoma: notauli absent; disk of scutellum smooth; dorsellum as long laterally as medially, rugulose above, striate below; episternal foveae, metapleural carina absent; mesopleural carina absent, mesopleural scrobe not sharply defined anteriorly; acetabular field small; acetabular carina simple, not crenulate.

Metasoma: T1 with one pair of sublateral setae; T2 transverse, smooth beyond basal foveae; male genitalia (Fig. 1) with laminae volsellares distinctly separated, strongly melanized; aedeagal lobe moderately elongate, slightly narrowed apically, apex truncate or weakly excised; penis valves not well differentiated; digiti each with two large digital teeth, teeth subequal in length.

Diagnosis: Telenomus argus is most eas-



Figs. 1–2. Male genitalia, ventral view. 1, *Telenomus argus*. 2, *Telenomus zygaenae*.

ily recognized by the characters of the male genitalia, in particular the possession of two equally large teeth on each digitus and the well-developed, but distinctly separated laminae volsellares. Other species with only a single pair of teeth on each digitus may be easily separated by other genitalic characters. *Telenomus lobatus* Johnson & Bin has an extremely long aedeagal lobe, longer than the remainder of the aedeago-volsellar shaft (Johnson and Bin 1982). In both *T. ampullaceus* Johnson & Bin and *T. turbatae* Nixon the aedeago-volsellar shaft is distinctly wider than the aedeagal lobe (Johnson and Bin 1982, Nixon 1937). *Telenomus sciron* Nixon has small, delicate digital teeth, in contrast to the long, thick structures in *T. argus* (Nixon 1935). *Telenomus guangdongensis* Chen & Liao appears to have a very broad aedeago-volsellar shaft and to have the laminae volsellares closely approximated medially (Wu et al. 1979).

The genitalia of *T. zygaenae* (Fig. 2), also reportedly reared from the eggs of a zygaenid, are very similar to *T. argus*, but may be distinguished by the presence of three teeth per digitus, with the mesal tooth distinctly smaller than the other two (Fig. 2). We have found the number of these structures to be variable only in those species with small teeth; among those with long, stout digital teeth (the *californicus* group, *arzamae* group, *dalmanni* group, see Johnson 1984) the number seems to be constant within a species.

The species described here keys out to *T. etiellae* Kozlov in Kozlov and Kononova (1983). The latter, however, is known from only four female specimens from the lower Volga region of the Soviet Union. Its distinguishing features, viz, short funicular segments, long fringe of setae along the posterior margin of the hind wing, and short striae at the base of T2, characterize a number of small species that parasitize the eggs of Lepidoptera. *Telenomous argus* may be conspecific with *T. etiellae*, but this determination must await the discovery of either males of the latter or useful diagnostic characters in the females.

Material.—Holotype male: Israel: Jerusalem; 5.vii.1978; Y. Eisenstein; ex *Theresimima ampelophaga*; deposited in the Canadian National Collection of Insects, Arachnids and Nematodes (Ottawa, Ontario). Paratypes: 12 males, 18 females with same data as holotype; 20 males with same locality data, collected 9.vii.1981, deposited in the authors' collections, CNC, and British Museum (Natural History).

Discussion.—This tiny species, like many other *Telenomus* that parasitize the eggs of Lepidoptera, is difficult or impossible to identify on the basis of external morphology. The male genitalia provide by far the best characters for separating it from others. Unfortunately, the male genitalia of very few Palearctic *Telenomus* have been described or figured; many species, in fact, are known only from females. Thus it has been impossible for us to be completely assured that this species has not already been described. We present it as a new species anticipating that when the identities of the many *Telenomus* described in the last 150 years are finally established, its proper status can be clearly and easily recognized.

Comments on Host Associations.—*Telenomus argus* was reared from its host in two years, 1979 and 1981, but its economic importance has yet to be assessed (D. Gerling, in litt.). The parasite may be confined to Israel or the eastern Mediterranean Basin as no other rearings have been reported despite the relatively wide distribution and food-plant specificity of its host.

Telenomus zygaenae was reportedly reared from *Zygaena lonicerae* (Scheven) in Denmark (Kieffer 1913), but this needs to be confirmed. The host name written on the labels of the type material of *T. zygaenae* is "Zygaena filip.", standing for *fillipendulae* (L.). Neither the egg mass nor a description of it is available, so this conflict between the published information and the label data cannot be directly resolved.

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